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## MAN.

(Continued from page 104.)

STATURE. No part of the natural history of man has been more confused and disgraced by fables and hyperbolical exaggeration, than the present division. Not to mention the pigmies and giants of antiquity, the bones of different large animals ascribed to human subjects of immoderate stature, even by such men as Buffon, sufficiently prove our assertion. The accuracy of modern investigation has, however, so completely exposed the extravagance of such suppositions, that they do not require very detailed considerations.

There is no fixed law determining invariably the human stature, although there is a standard, as in other species of animals, from which the deviations, independently of disease or accident, are not very considerable in either direction. In the temperate climates of Europe, the height of the human race varies from four feet and a half to six feet. Individuals of six feet and some inches are not uncommon in this country and in Europe. Occasional instances have been known, in various parts of the world, of men reaching the height of seven, eight, or even nine feet; and ancient and even modern authors speak of the human stature reaching ten, and even eighteen feet. The latter representations are grounded on large bones dug out of the earth. These, together with the common propensity to believe and report what is marvellous, and the notion that mankind have undergone a physical as well as moral degeneracy since their first formation, have led to a very common belief that the human stature in general is

at this period less than it was in remote ages. We are warranted in suspecting the accounts of such great elevation above the ordinary stature in the human species, by observing that nature, within the time of which we have any authentic records, exhibits no such disproportions in other species. We find, too, that the height of these giants is reduced, as we approach modern times, to what we have opportunities of observing now; so that we may probably affirm, that no sufficiently authenticated example can be adduced of a man higher than eight or nine feet.

The large bones, on which the notions about giants have been in many instances founded, have been discovered, by the accurate examinations of modern science, to belong to extinct species of animals of the elephant and other allied kinds. Of the loose and unphilosophical manner in which these matters have generally been inquired into, we have a specimen in the supposed bones of a barbarian king. Habicot, an anatomist of some celebrity, in a work entitled *Gigantosteologia*, describes some huge bones found near the ruins of the castle of Chaumont in Dauphiny, in a sepulchre, over which was a gray stone inscribed *Teutobocchus Rex.* This skeleton, he says, was twenty-five feet and a half high, and ten feet broad at the shoulders. Riolan, in his *Gigantomachia*, disputes this measurement, and affirms that the bones belong to the elephant. In the long controversy which ensued, it never occurred to either of the learned disputants to describe or represent the bones exactly. It is surprising that Buffon should have figured and described the fossil bones of large animals as remains of human giants, in the supplement of his classical work. Together with others, he mentions those dug up at Lucerne in the sixteenth century, and still preserved there. Blumenbach found these, on the first view, to be elephants' bones. Felix Plater, an excellent physician and anatomist of his time, after carefully examining and measuring these bones, declared that they belonged to a human giant of seventeen feet, and had a drawing made of this skeleton according to his opinion of its dimensions; which drawing is still preserved in the Jesuits' College at Lucerne.

That men in general were taller in the early ages of the world than at present, or that examples of very tall men were then more frequent than now, has been asserted without any proof. The remains of human bones, and particularly the teeth, which are unchanged in the most ancient urns and burial places, the mummies, and the sarcophagus of the great pyramid of Egypt, demonstrate this point clearly; and every

fact which we can recollect, from ancient works of art, from armor, as helmets and breast-plates, or from buildings designed for the abode and accommodation of men, concurs in strengthening the proof. Blumenbach has the skull and bones of an old person taken out of a burial place of the most remote antiquity of Denmark, and corresponding in size to the modern standard. That we cannot have degenerated in consequence of the habits of civilized society is clear, because the individuals of nations living in a way so different from us as the native Americans, Africans and South Sea Islanders, &c. do not exceed us in stature. Indeed, it has been generally observed of these races that they are shorter than the Europeans.

In mentioning individuals who have exceeded the ordinary height, it is necessary to confine ourselves, in order to avoid what may be fabulous or exaggerated, to instances in our own times. One of the king of Prussia's gigantic guards, a Swede, measured eight feet and a half; and a yeoman of the Duke John Frederick, at Brunswick Hanover, was of the same height. Gilly, who was exhibited as a show, measured 7 feet 9 inches. J. H. Reichardt, of Friedberg near Frankfort, was 8 feet; his father and sister were both gigantic. A female of Stargard, named La Pierre, was 7 feet 4 inches in height. Martin Salmeron, a well proportioned Mexican giant, the son of a Mestizo by an Indian woman, measures 7 feet 9 inches, and is well proportioned.

Bebe, the dwarf of Stanislaus, king of Poland, was 2 feet 9 inches, and well proportioned. His spine became curved as he approached manhood; he grew weak, and died at 23. The Polish nobleman, Borwlaski, who was well made, clever, and skilled in languages, measured 2 feet 6 inches. He had a brother of 3 feet, and a sister of 1 foot 10 inches. A Friesland peasant at 26 years of age had reached 4 feet 9 inches. C. H. Stoberin, of Nuremberg, was nearly 3 feet high at 20, well proportioned, and possessed of talents. Her parents, brothers and sisters were dwarfs.

Of numerous other instances on record, most seem to have been diseased, and particularly rickety individuals; so that they may be classed among pathological phenomena. An instance of this kind may be recollected of Major Stevens, who was exhibited in the New England Museum a few years ago. He was attacked in childhood with the rickets, which impeded his growth, and he arrived at the age of 21 without exceeding 3 feet in height.

The men who have considerably exceeded the ordinary standard, have neither possessed those proportions in their

form which we account elegant, nor has their strength by any means corresponded to their size. The head, in these cases, is below the ratio which it should bear to the body, according to what we deduce from men of ordinary stature; hence the brain must be comparatively smaller. It is a general observation, that very large men are seldom distinguished by extent or force of mental power. The dwarfs, again, are mostly ill made; the head, in particular, is too large. There are very few instances of what we can deem healthy well made men, with all the proper attributes of the race, much below the general standard.

Some varieties of the human race exceed, and others fall short of the ordinary stature in a small degree. The source of these deviations is in the breed; they are quite independent of external influences. In all the five human varieties, some tribes and nations are conspicuous for height and strength, others for lower stature and inferior muscular power. But in no case is the peculiarity, whether of tallness or shortness, confined to any particular temperature, climate, situation or mode of life.

In the Caucasian variety there are no strongly marked deviations from the ordinary standard, in either direction. Some parts of Sweden and Switzerland, the mountains of the Tyrol and Salzburg, are rather distinguished for the tallness of their inhabitants, while the Finnish race in the north of Europe may be short in the same proportion. The inhabitants of America exhibit more conspicuous examples both of tall and short races. Ulloa observes of the Peruvians, that men and women are generally low, but well proportioned. Cook calls the Pecherais of Terra del Fuego 'a little, ugly, half-starved race;' and adds, 'I did not see a tall person among them.' The Western American tribes of Nootka Sound, near the Columbia, and further north, are described by Cook, Lewis and Clarke as low in stature.

'The Chaymas of South America,' says Humboldt, 'are in general short; and they appear so particularly when compared, I shall not say with their neighbors the Caribbees, or with the Payaguas or Guayquilits of Paraguay, equally remarkable for their stature, but with the ordinary natives of America. The common stature of a Chayma is about 5 feet 2 inches. Their body is thick set, shoulders extremely broad, and breasts flat. All their limbs are round and fleshy.' He adds in a note, that 'the ordinary stature of the Guayquilits or Mbayas, who live between 20 and 22° south latitude, is, according to Azzara, 6 feet ½ inch. The Payaguas, equally tall, have given their name to Payaguay or Paraguay.' The same

accurate observer informs us, respecting the Caribbees of Cumana, that they are distinguished by their almost gigantic size from all the other nations he has seen in the New World.

Among the native tribes in the cold regions north of Canada, Mr. Hearne saw individuals of 6 feet 3 and 4 inches. Mr. Bartram found the Muscogulges and Cherokees of North America, between 31 and 35° north latitude, taller than Europeans; many being above 6 feet, and few under 5 feet 8 or 10 inches.

The Patagonians, or, according to their indigenous name, the Tehuels, who occupy the southeastern part of South America, have been the most celebrated for their colossal stature, and really seem to be the tallest race of human beings. Their height, however, has been exaggerated by some, while others have denied that it exceeded the ordinary standard. Pigafetta, who accompanied M. Galhaens on the first circumnavigation of the globe, gives them the height of 7 feet 4 inches. Subsequently to this period, for two centuries and a half, the narratives of European travellers are so strangely contradictory and inconsistent with each other on the subject of these Patagonians, that they afford a lesson inculcating most strongly the necessity of caution and diffidence in employing such reports. It is sufficient for the present purpose to represent what appears the probable state of the case, after weighing and critically considering the most unexceptionable testimonies. The Patagonians seem to be a tall but not gigantic race, and to possess a remarkably muscular frame. The only individuals ever seen in Europe were brought to Spain towards the end of the sixteenth century, and seen at Seville by the classical traveller Van Linschoten, who says they are well formed and large in the body. The variety in the statement of different travellers makes it difficult to assign any particular height; but we are authorized in representing it as commonly reaching 6 feet, being often 5 or 6 inches higher, and sometimes even 7 feet.

After surveying the tall and muscular frames of the Patagonians, Caribbees, Cherokees, and many other American tribes, what shall we think of the notion brought forward and defended by many learned men, including even a Buffon and a Robertson, that America is unfavorable to the formation and full developement of animal existence? The former writer asserts that the animals common to the Old and New World are smaller in the latter; that those peculiar to the New are all on a smaller scale; that those which have been domesticated in both have degenerated in America; and that,

on the whole, it exhibits fewer species. He extends the same kind of assertion and reasoning to the human species, which he describes as dwarfish, puny and weak in body, and destitute of all mental vigor, capacity and talent. All these representations are fully and clearly refuted by Mr. Jefferson, who has displayed as much eloquence and sound reasoning in vindicating the savage nations of America from the aspersions of the great French naturalist, as he showed energy and perseverance in asserting the liberties of our own countrymen, wisdom and firmness in fulfilling the duties of our chief magistrate. In the following remarks he has brought forward the mammoth in opposition to the learned theories; the reasoning is equally applicable to the Patagonians, Caribs, and other tribes of powerful men, which, being in actual existence, afford a safer ground of conclusion respecting the present capabilities of the climate, soil and air of America, than those colossal remains of an extinct species, which may have belonged to a very different order of things.

'It (the mammoth) should have sufficed to rescue the earth it inhabited, and the atmosphere it breathed, from the imputation of impotence in the conception and nourishment of animal life on a larger scale; to stifle in its birth the opinion of a writer, the most learned of all in the science of animal history, that, in the New World, living nature is much less active, much less energetic, than in the Old;—as if both sides of the globe were not warmed by the same genial sun; as if a soil of the same chemical composition was less capable of elaboration into animal nutriment in America than in the ancient continent; as if the fruits and grains from that soil and sun yielded a less rich chyle, gave less extension to the solids and fluids of the body, or produced sooner in the cartilages, membranes and fibres, that rigidity which restrains all further extension, and terminates animal growth. The truth is, that a pigmy and a Patagonian, a mouse and a mammoth, derive their dimensions from the same nutritive juices; the difference of increment depends on circumstances unsearchable to beings with our capacities. All races of animals seem to have received from their Maker certain laws of extension at the time of their formation. Their elaborative organs were formed to produce this, while proper obstacles were opposed to all further progress. Below these limits they cannot fall, nor rise above them. What intermediate station they shall take, may depend on soil, climate, food or selection in breeding; but all the manna of heaven would never raise the mouse to the bulk of the mammoth.'

Similar differences of stature to those which we have described in the American occur also in the Ethiopian variety. That of the Negroes in general does not differ essentially from our own. The Hottentots are the smallest of the species in Africa. The whole race is shorter than Europeans, yet not so invariably but that tall individuals sometimes occur. Thus Latrobe mentions one of 6 feet in height. The Bosjesman tribe, however, are remarkably short, even among the Hottentots. Two individuals seen by Lichtenstein were scarcely 4 feet high. Mr. Barrow says, that 'in their persons they are extremely diminutive. The tallest of the men in a horde or kraal containing 150 individuals, measured only 4 feet 9 inches, and the tallest woman 4 feet 4 inches. About 4 feet 6 inches is said to be the middle size of the men, and 4 feet that of the women. One of these that had several children measured only 3 feet 9 inches.'

To show how little the varieties of our species depend on climate, situation, or other external influences, we find the neighboring tribe to the Hottentots, the Kaffers, distinguished for height and strength. These qualities, however, are more conspicuous in the men than in the women, and the same remark holds good in other instances. Langsdorff was surprised at finding the Marquesan women deficient in those personal qualities which were so remarkable in the men, and could hardly suppose them to be the mothers of the very fine males whom he saw. 'The Kaffer women were mostly of low stature, very strong-limbed, and particularly muscular in the leg; but the good humor that constantly beamed upon their countenances made ample amends for any defect in their persons. The men, on the contrary, were the finest figures I ever beheld; they were tall, robust and muscular; their habits of life had induced a firmness of carriage, and an open manly manner, which, added to the good nature that overspread their features, showed them at once to be equally unconscious of fear, suspicion and treachery. A young man about 20, of 6 feet 10 inches high, was one of the finest figures that perhaps was ever created. He was a perfect Hercules; and a cast from his body would not have disgraced the pedestal of that deity in the Farnese palace.'

He states in another place, that 'there is perhaps no nation on earth, taken collectively, that can produce so fine a race of men as the Kaffers; they are tall, stout, muscular, well made, elegant figures. They are exempt, indeed, from many of those causes that, in more civilized societies, contribute to impede the growth of the body. Their diet is simple; their exercise of a salutary nature; their body is neither

cramped nor encumbered by clothing; the air they breathe is pure; their rest is not disturbed by violent love, nor their minds ruffled by jealousy; they are free from those licentious appetites which proceed frequently more from a depraved imagination than a real natural want; their frame is neither shaken nor enervated by the use of intoxicating liquors, which they are not acquainted with; they eat when hungry, and sleep when nature demands it. With such a kind of life, languor and melancholy have little to do. The countenance of a Kaffer is always cheerful; and the whole of his demeanor bespeaks content and peace of mind.'

The several people classed under the Mongolian variety are shorter in stature than the Europeans; but, like the nations belonging to the other varieties, they exhibit differences in this respect. The Chinese and Japanese are nearly of the same height with ourselves.

The Mongols, Calmucks, Burats, and other tribes of central Asia are shorter. The Lewchews are a very diminutive race, the average height of the men not exceeding 5 feet 2 inches at the utmost. The Laplanders and Samoiedes in Europe, the Ostiacs, Yakuts, Tungooses and Tschutski in Asia, the Greenlanders and Eskimaux of America, all, indeed, who inhabit high northern latitudes, are equally short, measuring from 4 to a little more than 5 feet; and they agree remarkably in other characters, although occupying countries so distant from each other.

On reviewing the facts detailed in the foregoing pages, we see that although the various races of men differ from each other in stature, as well as in other points, these differences are confined within narrower limits in man than in the species of domestic animals; and consequently that they do not prove diversity of species. The pigs taken from Europe to the island of Cuba have grown to twice their original size; and the cattle of Paraguay have experienced a very remarkable increase. Perhaps the horse affords the most remarkable instance of difference in stature. Mr. Pennant says that "in the interior parts of Ceylon there is a small variety of this animal, not exceeding thirty inches in height, which is sometimes brought to Europe as a rarity.'

In further proof that the diversities of stature in mankind afford no sufficient argument of original specific difference, we may observe that individuals often occur in each race, differing from each other quite as widely as the generality of any two races differ. Nay, we may even see two brothers as much unlike each other in this respect as the Laplander and the Patagonian.

# THE HIVE BEE.

(Continued from page 51.)

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## The Cultivation of Bees.

[We have before us 'An Essay on the Practicability of Cultivating the Honey Bee, in Maritime Towns and Cities, as a Source of Domestic Economy and Profit. By Jerome V. C. Smith, M. D.'—However inconsistent it may appear at the first view, there is a considerable degree of probability that bees can be cultivated in cities with success. By permission we shall make some extracts from this Essay and insert in connection with other topics of our work, which will give our readers some knowledge of the subject; and we earnestly hope that all who have sufficient means to attend to it, will avail themselves of making the experiment.]

'It was the opinion of Huish, a distinguished English writer on Bees, in 1817, that within the circumference of ten miles of London, ample provision might be found for the support of ten thousand hives.

'The same remark is applicable to Boston, New York, Philadelphia, Albany, &c., and yet there is not, probably, five hundred swarms in the immediate vicinity of all these cities. An opinion is prevalent that nothing exists in a paved town, from which this industrious insect could select even enough for the support of its own domicile. This is an error, which one object of this essay is to correct, and thus prepare the way for a source of domestic economy, even in the country almost entirely neglected, and in maritime towns never attended to at all, because it is wholly unknown.

'When the fact is understood, that bees go much greater distances in search of their appropriate materials than is generally supposed, it will at least be one testimony in favor of housing them in town, as they bring from a distance to their master's door the sweets of distant districts.

'Several mistaken writers agree in remarking, that in foraging, bees rarely go more than a mile or a mile and a half from home; this my own experience proves to be otherwise. On an island in Boston harbor is a hive of bees in a flourishing condition, whose range cannot be less than three or four miles in order to procure their full store. The island on which they are located has but few flowers at any time, and on the whole presents to the apiarian a forbidding aspect. Notwithstanding these discouraging circumstances, the quan-

tity of honey from season to season has been unexpectedly large, and must, therefore, have been procured from neighboring islands as well as the main land. The nearest island is one mile: on another, about one mile and a half distant, honey bees have been observed in great plenty when the white clover is in blossom. Indeed, a farmer informed me that he had repeatedly seen them arrive and depart for the island on which they so unexpectedly thrive. Hull, a small town, is at the distance of two miles, and Quincy about four,—from each of which places, judging from the numbers of returning bees, over the broad expanse of water, heavily laden with farina and honey, their burdens must have been brought.

'This relation at least shows, that when obliged by necessity, bees travel to considerable distances—and also proves that in cities, provided there were no flowers for them to visit, they would go in search of them in the environs. But all cities have gardens, and some of them are of such extent, in Boston particularly, that, unaided by the millions of flowers, flourishing under every window, or springing up on the borders of the beautiful common, in my opinion they would sustain alone a large number of hives. Again, there are an immense number of trees in all cities by the public walks, and in the grounds of all valuable estates, and in sufficient abundance too, without cultivated gardens, to sustain hives enough to supply a portion of the population with a moderate quantity of honey.

'But when the trees exhaling sweet dews, the shrubbery, the flower gardens and the thousands of flower pots, yielding a rich perfume, are taken into consideration, it must be evident that the paved city offers no objections to the successful and profitable cultivation of the honey bee. If any demonstration is required, it need only be said that I have repeatedly exhibited a glass hive, containing over one hundred pounds, which was made in the heart of Boston in a few summer weeks.

'Were it only for the gratification arising from the inspection of such a wonder-working insect, the man of leisure would be amply compensated for the attention he might bestow on a hive, as a curiosity, had he no higher motive. Their untiring industry would constantly admonish the indolent, that by '*industry we thrive*,' and perhaps, prompt some to make exertion, if in nothing else, in raising bees,—as there is always a prospect of gain, independent of their own personal labor.

'Again, in large commercial towns, there are men of overgrown fortunes, who, on retiring from the active business of life, with the expectation of enjoying the remnant of their days, find themselves unexpectedly disappointed in every attempt to be happy; the secret of their misery is this,—an idle man is always miserable. To such gentlemen I would strongly urge the culture of the bee. If they were not fond of the product, give it to the poor;—if they were not philosophers, they would insensibly, as apiarians, find themselves studying the great volume of nature, whose fair page has never before arrested their attention;—and if any one should have the misfortune to be a skeptic or even tinctured with infidelity, his contemplations, on the habits and economy of the little honey bee, would, at once, settle all his doubts.

'Another inducement for engaging in the cultivation of bees, in cities, arises from the consideration of the fact, that an ample return is speedily made for any moderate expenditure of money, in a most excellent, wholesome kind of food, at a rate, so much below an ordinary market price, as to make it an object, even with the rich.

'To the middling classes of cities,—the truly laborious, who might, and who can attend to the raising of honey, without at all interfering with their ordinary business, this would, in the end, were it not a source of profit, be, at least, an easy mode of procuring a luxury. I am perfectly convinced that the laboring man can supply his family with rich, pure virgin honey, through the year, at less than one cent a pound, after he has sold enough to pay the first cost of his apiary. Honey is a substitute for butter, in some parts of oriental countries; and in this, were it afforded at a rate so moderate, that the poor,—that peculiar class of poor indigenous to cities, could afford to purchase, it would be a wholesome, useful substitute for butter, a part of the time, and at all seasons, prove a very valuable article in household economy. And lastly, if there were ever a surplus, in any family, it would have a ready sale.

'By some sad misapprehension, there is an impression abroad, that a profitable cultivation of bees can only be undertaken in the country. One would suppose, in travelling through New England, that they were wholly unknown, in a great proportion of the large farming towns. Occasionally the eye discovers a miserable, poverty-stricken bee shed, nailed to the gloomy side of some old barn,—tolerated, it would seem, by the farmer, as an hereditary appendage to his land, but he is apparently unconscious of the bee's renowned

character for patient, profitable labor, even in the service of an unfeeling master. It matters not, whether the flowers from which the bee sips its honey, be at the foot of the hive, or in a neighboring village; wherever they thrive best, there the bee wends its way, with unfailing success. Wild bees, whose home is a hollow limb, in the thickest of the forest, remote from cultivated fields, fill up, in process of time, the whole cylinder of a tree. The accomplishment of this task, the more surprising, when it is recollected that few or no flowers are growing near, evinces the exceedingly persevering character of the creature under consideration. Enough has been said, though more arguments are still in reservation, when required, to convince those who may still have doubts, of the practicability of raising honey in great abundance, in the very heart of our principal cities.

'Let it be remembered, that wherever the bee may be placed, provided its liberty is unrestrained, whether in the dense, wild forest, the cultivated field, or in the thickly inhabited town, regardless of surrounding circumstances, it pursues, with unwearied toil, its characteristic routine of service for the common good, and fills its granary in the calm of summer, against the vicissitudes incident to the changes of seasons.

'Localities for Bees in Cities. Without endeavoring to combat the vulgar prejudice in favor of giving a south or southwestern aspect to the bee house, it is sufficient to remark, that actual experience warrants me in saying that the point of compass towards which the entrance to the hive is turned, is not of the least possible consequence. In a city, where dwellings are huddled together, and where spacious front or back yards cannot be afforded, it would be impossible always to give the same aspect to the hive; fortunately, therefore, their success does not depend on this circumstance; it has been well ascertained, that wherever breathing animals can exist, the bee may flourish, whether fronting south or north. If a yard is small, but at the same time dry, that is enough; if however, there are high brick walls, and a continual dampness at the bottom, the place may be considered unfavorable.

'When perfectly convenient, the bee house should be erected under a tree, if there is one in any part of the enclosure, as it answers the two-fold purpose of being a delightful shade in summer, and a resting place for the new swarms, whenever they take flight from the parent stock. In yards where there are neither trees nor shrubbery, the cultivator

should take the precaution to transplant something, if it be nothing but sun-flowers, which have a speedy growth; otherwise, the young broods, as they make their exit, finding nothing prominent on which to rest their feet, are apt to rise high in the air, and take a horizontal flight of several miles before they alight. Being young and unaccustomed to the wing, they are readily induced to cluster on the limb of a bush or tree, if within any moderate distance of the old hive.

'Hives placed on the high, flat roof of a shed, suitably shaded by a temporary roof of boards, to protect them from the scorching rays of the sun, are always thrifty and healthful. This is owing, probably, to the purity of the atmosphere, at a distance from the ground. The bee is an orderly, systematic insect, exclusively devoted to its own personal concerns; it is therefore the more important to give it a station where it will be the least liable to interruptions. In the yard, the remotest corner would be the most proper spot, at a distance from the pump, if there be one, so that in passing to and fro, the bees would not feel particularly annoyed. When a hive is kept in a state of alarm by the tormenting ingenuity of mischievous boys, the time in which they would be ranging over the city in search of honey, will be lost in defending their premises. Every yard, if it is but ten feet square, has a corner in which a hive may stand safely, and at a sufficient distance not to be any interruption to the family; neither would the family, in a short time, be any interruption to them. However, where there is any repugnance to introducing such a belligerant power into a very small inclosure on account of small children, it would by all means be advisable to set the hive either on a shed or in the garret of the house,—the latter, decidedly the best bee house that could be constructed.

'Most of the preceding remarks relative to the locality of an apiary, have reference to such tenements as are in the occupancy of the poorest classes of citizens, but who possess the appetites of the wealthy. Farmers in the country construct very simple hovels for the protection of their hives, often a mere board reaching from the ground to the top rail of a fence. Almost the only object seems to be to prevent the heat of the sun from melting down the flakes of comb. Simple as this contrivance is, it is much better than nothing, yet altogether unsuitable. If water gets through the seams, the honey will not only become diluted, but be washed away.

'When the hive or the bee house is poorly built, of shaky boards, or with open joints, the bees are obliged to bestow so

much labor in mending up their crazy dwelling, that much valuable time is actually lost to the owner, as the same time, had he done his duty at first, would have been spent in the more pleasant employment of collecting honey. Any person having ingenuity enough to use a handsaw and hammer, could erect a very comfortable weather-house in the course of an hour.

'Gentlemen, on the other hand, owning pleasant estates, who are not under the necessity of changing their habitations, and who are desirous of combining taste with permanent improvements, should have edifices for their hives corresponding to the appearance of their own dwellings. The apiary, under such circumstances, should be particularly ornamental, combining the advantages of being an interesting object, constructed also to gratify the eye in watching those delicate operations in the interior of a glass hive, which have so much astonished philosophers from the first records of civilized man down to the present period.'

Of the Bee House. From Bevan's treatise, published in London, 1827, we have selected the following description of a bee house, which we believe to be preferable to any other within our knowledge.

'No one that could afford to purchase bee boxes, and to construct a bee house, or to convert to that use some building already constructed, would hesitate, I should think, to give them the preference over common straw hives and an outdoor apiary, whether he looked to ultimate profit or to present convenience and security.

'Perhaps I cannot give a better notion of what I consider as the most eligible plan of a bee house, than by describing my own. The whole building, besides answering the purpose of an apiary, may be subservient to other uses;—my own serves for storing potatoes. The potato cellar is sunk two-thirds of its depth in the earth, and the bee house is raised upon it, having a couple of steps up to the door. The dimensions of both are seven feet six inches by six feet clear within, which affords room for five colonies.

'The piles or stories of bee boxes are placed in the bee house at somewhat less than two feet apart, so as to make the external entrance to each pile respectively, about a yard asunder. (See Fig. 1.)

'On the inside of the bee house, the boxes in the upper row stand about table height, those in the lower row, about six inches above the floor. On the outside, the entrances to the upper row are about five feet, the entrances to the lower

row about three feet from the ground. The entrances through the wall may be cut in stone, bricks, or wood, and should be chamfered away on the outside, leaving the wall at those parts as thin as practicable, and letting the opening correspond in size with the outlets that are sunk in the floor boards to be hereafter described. The potato cellar is built with bricks, the bee house with timber, lathed and plastered within, and thatched on the outside.

'Where the bees enter the boxes, two wooden shelves or resting boards are fixed, two or three inches thick, to prevent warping; they extend the whole length of the building, are about a foot wide, and rest on cross pieces, nailed fast to the uprights with which the bee house is built: these cross pieces extend also about fifteen inches into the bee house, where they serve as supporters for the shelves on which the bee boxes are placed. The resting boards on the outside are divided, by bricks on the edge, into several compartments, as represented by Fig 1; the bricks extend the full width of the resting board, and all the compartments are slated over. By this means the entrances are all sheltered, and accommodation is afforded for the bees, when they are at any time driven home, by stress of weather, in greater numbers than can readily pass through the entrances into the boxes; for on the approach of a storm, the bees will sometimes return home from the fields in such numbers and with such precipitation, as almost to block up the entraces into the hives.

'The building is not only thatched on the top, but down the sides and ends as low as the potato cellar. On that side where the bees enter the boxes, the thatching of course terminates at the top of the compartments, over which it is spread out so as to conceal the slate coverings. The floor of the bee house is boarded, and the potato cellar is ceiled, the space between the ceiling and the floor above being filled with dry sawdust. The door may be situated where most convenient; but the window or windows should be at one end or at both ends, that the light may fall sideways on the bee boxes; and should be made to open, as in case of any of the bees accidentally getting into the bee house, that they may be let out more conveniently.

'It is necessary to have an extra entrance, or rather an extra outlet, for discharging the bees when the time of deprivation arrives, in case any should escape from the box. The outlet of my own bee house is placed in a line with and between the lower tier of boxes.'

Of the Bee Boxes. There has been a diversity of opinion as to the form and dimensions of bee boxes. We prefer those invented by Dr. Thacher, which are thirteen inches square and seventeen inches high. A back view, as represented by Fig. 2, shows that there is a horizontal floor, about ten inches from the bottom, passing through the middle, dividing it into two apartments. In the lower are cross bars for suspending the comb, as common to all hives. In the upper room are two drawers, side by side, (one of which is taken out, as represented by *c.*) just filling the whole space. Through the bottom of these drawers are small orifices, corresponding with two others through the horizontal flooring. Thus it will be clearly understood, when the drawers are entirely in, the holes will correspond, so that the bees can run freely from the lower to the upper apartments or drawers. At the outside end of the drawers, panes of glass are grooved in, through which it can be ascertained what state of forwardness the deposition of honey is in. Outside of each of these, on a line with the box, is a slide door, (*a.*) the object of which is to close for the exclusion of light. Before the drawer is to be taken out, a slip of tin (*b.*) is slid over the lower opening to keep the bees below. First one drawer, then the other may be taken out, alternating, as circumstances require. The entrance for the bees is on the back side as represented by the figure, leading into the lower apartment. These boxes may be adapted to the before described bee house or to that invented by Dr. Thacher, at the option of the apiarian.*

These hives afford the most effectual security against the bee-moth, as they deny them of all access to the hives except at the entrance, which the bees themselves will defend; but should the moths be very numerous, it will be best to close the entrance by a grating. The door of the bee house may be opened, and the back part of the hive a little raised, occasionally, for ventilation, but closed at night.

The hives are also shielded from the intense heat of the sun, by which the combs are frequently melted. The bees are kept dry during the winter; and the hives secured from the weather are less liable to decay.

* The proprietors of the Agricultural Warehouse, No. 52 North Market Street, Boston, are agents for selling the above boxes, where they may at all times be had, and a full explanation given.

SWARMING.

'See where with hurried step th' impassioned throng
Pace o'er the hive, and seem with plaintive song
T' invite their loitering queen; now range the floor,
And hang in clustered columns from the door;
Or now in restless rings around they fly,
Nor spoil they sip, nor load the hollowed thigh;
E'en the dull drone his wonted ease gives o'er,
Flaps the unwieldy wing, and longs to soar.'

'Such is the order of things in the economy of the honey bee, that in the commencement of summer there is thrown off from the parent hive one, two, three, and sometimes four swarms or independent families of young ones, who, immediately after being housed, commence operations for themselves, or if not molested or secured by artificial management, seek out a secure retreat in hollow trees, fissures of rocks, or in the obscure corners of decaying buildings. In anticipation, therefore, of this event, the apiarian should have several new hives on hand. The sure, indeed, almost unfailing precursors of swarming, are these, viz: for several days there is an unusual commotion in the hive; the bees cluster on the lighting board in front of the entrance in masses, oftentimes the size of a quart measure, and at night-fall retire again within as usual. On the following or second morning, if the weather is clear,—if the sky is cloudless, the confusion increases to a prodigious degree, and suddenly a surprising column of bees hurry in one simultaneous movement towards the door, rising in the air equally suddenly, and within a very few minutes present the novel spectacle of thousands of bees all on the wing, flying in whirls—so that the mass resembles, in outline, a globe of some thirty or forty feet in diameter. During this ejection of the children from the parental roof, all business of the ordinary kind appears to be suspended. The old bees dart to and fro, in a most angry manner, driving the young from the hive if they attempt returning, when the weather offers no obstructions to the success of the flight, and forcing them further and further from the place of their birth. The young brood continue thus whirling over or very near the old hive, till all their associates have been assembled in the ring, when, with an unexpected start to the spectator, the whole body, unless at the very moment arrested, are lost without redemption. This, indeed, is the trying moment for the apiarian; if he is successful in obliging them to light, they can be at once housed in a new hive—which is no sooner accomplished than good order, even in the new swarm, immediately

ensues. The mass begins to climb up the walls, and stragglers constantly arriving, join their lately agitated clansmen.

'New hives need no other preparatory fixing than to be clean and tight—so that light and rain cannot penetrate them. From the middle of May, in this section of the country, to the middle of July, new swarms are given off; this, however, very much depends on the good or bad condition of the stock hive which has been wintered over.

'A good hive, and such a one as can be relied upon, contains, on an average, from 12 to 20,000 working bees, which are females,* and 1500 to 2000 drones or male bees. Early swarms may be anticipated, if there has been a plenty of honey to sustain the bees through the winter; on the contrary, if the laborers are few, and they have become debilitated by famine, a late swarm only need be looked for, if one appears at all. Bees very frequently supply their losses, after a severe calamity, by incorporating the young ones into their feeble ranks. Two swarms, for a general rule, may be expected from a hive of the first description. Usually bees swarm from about ten to half past eleven o'clock in the morning, and only in fair weather.

'Sudden showers of rain will arrest their design at once, even if the whole swarm are getting on the wing. A knowledge of this fact has been seized upon by cultivators, to collect them from the air, in order to cover them with a hive.

'For this purpose, a large pewter syringe, perforated at the distal extremity, with many holes, like the top of a pepper box, is an admirable instrument for controlling their erratic movements. By throwing water into the air pretty freely, and if necessary, an assistant should be plying a second one, when the swarm are disposed to be refractory, their wings are wet, and the bees instinctively endeavor to escape the impending danger, by settling down into a solid mass on some prominent or projecting body near by, as the limb of a tree, the corner of the house, brake of a pump, or the back of a chair. When they have fairly lighted, if they attempt a second flight before the hive is in readiness, the engine must play a few times more, and, indeed, as often as circumstances seem to require, till the process of hiving has been fully completed.

'Another method, often successfully practised by apiarians, consists in throwing up sand, freely into the air. Whether the bees are induced to light, in consequence of the injuries

* The writer doubts the existence of the queen bee.

they are receiving from the stony particles, or in consequence of fright or a presentiment of an approaching storm, has not been determined. It is decidedly most philosophical to resort to the water, which always, if properly managed, is sufficient to control their movements, just as may be desired. By the wetting, they sustain no permanent injury, whereas, by the sand or gravel, they are liable to be both maimed and killed. The vulgar notion that it is necessary to ring bells, rattle tin pans, or blow horns, is based on the supposition that the bee has an ear organized like a man's, and that through this highly developed sense, its mind—its reasoning powers are to be operated upon through the influence of fear! If they could recognize the hoarse vibrations of many domestic utensils brought into requisition at some country farm houses, in swarming time, there is no doubt they would be frightened! Nothing can be more absurd than this procedure, which does no more towards housing the bee, than it does towards staying the tides.'

Bees when swarming are less disposed to sting than at any other time, which may probably be ascribed to their being freed from the charge of their young brood, but every movement indicates attachment and devotion to their queen; whatever direction or stand she may take, it is the rallying point where the multitude assemble. In one instance the queen took her stand about the head or neck of a young woman who was assisting in hiving a swarm; instantly the whole upper part of her body was covered with bees. The spectators were exceedingly alarmed lest she should fall a sacrifice. The owner urgently directed her to be firm, and to stand perfectly still while he searched for the queen. After much difficulty she was secured and put into the hive; the bees were now dispersing, but the queen unfortunately returned to her station, and pressed into the cluster as if to elude pursuit, and the bees renewed their station. The affrighted girl cried out for assistance; most fortunately the queen was again taken and secured in the hive, when all the people followed, and left the girl without a single sting. Had she acted in opposition to the bees and excited their wrath, it might have been at the expense of her life. The late Rev. Dr. R——, having had occasion to hive a swarm of bees, perceived that they were flying before him and buzzing round his head; he followed them to a considerable distance, till at length it was observed that the queen had alighted on the corner of his hat. Finding himself thus crowned by her majesty, the doctor deliberately returned home with his

charge, and accommodated the royal family with appropriate apartments.

'This circumstance, however rarely happens, when there are any bushes or projecting points from surrounding buildings. When such an accident does occur, let the individual be instructed to remain firmly in the spot, without moving his limbs more than may be absolutely necessary, till some one reaches a lighted pipe or cigar, for him to smoke. The odor of smoking tobacco is so intolerably offensive, that they are actually obliged to rise immediately or die of suffocation. As the outer circles rise, to keep from the influence of the narcotic vapor of the pipe, they settle, without much preliminary ceremony, on the nearest projecting body, let it be what it may. This is the time for securing them within a hive.

'In the act of swarming, the manager should be cool and collected. Any useless exertion, exciting the rapid circulation of the blood, increases in the same ratio the exhalations from the surface of the body, always unpleasant to the honey bee. The perspiration of the human body is particularly offensive to the minute organs of the bee. As the perspirable matter is different in different persons, it at once explains the reasons why they have such strongly marked antipathies to certain individuals. Indeed, this manifestation of dislike towards some persons, is so remarkable, as to give the unconscious offenders the strongest prejudices against this interesting architect. I have noticed several seamen, in passing the apiary, as they were on the way to my office, stop for a moment, to watch their proceedings. Almost instantaneously, the bees would pursue some two or three, out of half a dozen, with unrelenting fury, stinging whenever they could get a hit at any part of their bodies: the others, perhaps, might stand viewing them, and, indeed, look into the hive, by raising it, without even being noticed by those, which had been raging after their companions.

'The ingenuity of the cultivator of bees will be frequently called into requisition, in the course of the swarming season. No arbitrary rules can be given which may be implicitly relied upon. Much of the success depends on the calm, fearless manner of the manager of these operations. The experience of one year will suggest various processes and improvements, some of them, perhaps at variance with these remarks, but if they promise utility, let them have the preference.'

# THE LILAC.

NATURAL ORDER—*Jasmineae*, resembling the jasmine in flowers and medicinal properties, being a secernant and stimulant. CLASS—*Diandria*, having two stamens. ORDER—*Monogynia*, having but one pistil. GENUS—*Syringa*, comprising lilacs. Corol salver-form; capsule 2-celled.

—

'The lilac, various in array, now white,
Now sanguine, and her beauteous head now set
With purple spikes pyramidal, as if
Studious of ornament, yet unresolved
Which hue she most approved, she chose them all.'

—

THE delightful sensation which the lovely tints of this elegant flower and its fragrance produce on us in the month of May, has been compared to the emotions of love—for nature seems to have ordained that mortals should not be permitted to see the one or feel the other with indifference; for who can behold the flexible and modest, yet dignified clusters of this charming flower, whose colors vary at every movement, and so sweetly descend from the finest violet down to the silvery white, without regretting the short duration of so divine a gift?

Perhaps we have no flower that gives, or an imagination strong enough to conceive, greater harmony than is afforded in the happy gradation of color, from the purple bud to the almost colorless flower of these charming groups, around which the light plays and dissolves itself into a thousand shades, which all blending in the same tint, form that incomparable combination that rivets the attention of the most indifferent observer, and throws the painter into despair. We are told Spaendonk himself dropped his pencil before a bunch of lilac; for Flora seems to have designed the thyrsi of the lilac to please the artist by their delicacy, and to tantalize him by their varying tints.

The harmony of colors is so complete in the lilac, that when we place a bunch of the white flowers on a branch of the purple variety, an offensive harshness is instantly observed; nor will the more delicate green of the first kind assimilate with the purple tyrus of the latter, without displeasing the eye.

In the Floral language of the East, where this flowering shrub is a native, and where spontaneously

——'the lilac hangs to view
Its bursting gems in clusters blue,'

they have made it an emblem of the forsaken, because it is the flower that lovers offer their mistresses when they quit them; but in other climates, where the charm of the fair is as powerful as this flower is agreeable, the *swain* is kept in constant fear of *receiving* the lilac.

However ungallant the Persian beaux may be in giving the lilac, they are not deficient in complimenting the fair in their language, as their expression for a fine woman and a beautiful flower is the same. *Lilac* or *lilag* is a Persian word, which signifies a flower, but which Europe has given to the shrub it has taken from the ancient Elamites; and from the flower we have given name to one of the most delicate compound colors.

That a plant of tropical climes should be so hardy as to stand the severest winters of the greater part of Europe and this country, is admirable in the lilac. Its easy propagation and speedy growth are no less conspicuous than its beauty, and which have contributed to its rapid distribution throughout not only the temperate, but even some of the colder parts of Europe and America; for it has naturalized itself in Scotland and in the mountains of Switzerland, and it is now found in the forests of Germany, although it was unknown in England before the year 1562, when Angerius de Busbeke obtained it from the East, and transported it from Constantinople to Vienna, whence he had been sent ambassador from the Emperor Ferdinand I. to the Sultan Soliman.

The generic name of this plant, *Syringa*, is derived from the Greek *syrinx*, a pipe, because when the pith is taken from the wood, it formed pipes like those which Pan made of the reeds into which the nymph Syrinx was transformed.

> ——————' "Thou," he said,
> "Who canst not be the partner of my bed,
> At least shall be the consort of my mind,
> And often, often to my lips be joined."
> He formed the reeds, proportioned as they are,
> Unequal in their length, and waxed with care,
> They still retain the name of his ungrateful fair.'

Hence, as *Syrinx* and *Syringa* meant a pipe, the lilac was called the pipe-tree when first known in England; and under that name Parkinson writes of it in 1640, and Roy in 1665. Although Gerard says, in 1597, 'The latter phisitions do name the blew pipe-tree *Lilach* or *Lilac*, and some *Syringa*.' This author tells us that the lilacs were then growing in his garden in very great plenty, where they flowered in April and May; and he adds, 'but as yet they haue not borne any fruite in my garden, though in Italie and Spaine their fruite is ripe

in September;' from which we learn it was common in Europe; but we have no means of ascertaining by whom and in what year it was introduced into England. However, as it reached Germany in the second year of Queen Elizabeth's reign, it is probable that plants were soon afterwards sent to her gardener; as we find by the survey of the royal gardens of Nonsuch, in Surrey, which were planted in the time of Henry VIII., and were one of the favorite residences of Elizabeth, that in the privy gardens of that palace there were fountains and basins of marble, one of which was 'set round with six lilach trees, which bear no fruit, but only a very pleasant smell.' This survey was made in the time of Charles II., who gave the palace and gardens of Nonsuch to one of his mistresses, who pulled it down and sold the materials.

In the shrubbery the lilac is among the first that announce the return of spring; and no flowering tree makes known the welcome tidings in a more pleasing garb, for the beauty of its foliage, and particularly that of the white variety, is scarcely less agreeable than its girandoles of flowers, that shed their perfumes so delightfully over our May-day walks. The praise which Eudosia bestowed on the swan, we may safely borrow for the white lilac, as it is equally an

> 'Emblem of modest grace,
> Of unaffected dignity and ease,
> Of pure and elegant simplicity.'

Many persons complain of the lilac for shedding its flowers so early, without taking into consideration at what an acceptable period the blossoms appear, and that it lends its beauties, with those of the laburnum, to fill up the space between the flowering of the almond and the rival of the rose, which leaves us nothing to regret.

The most beautiful variety of the common purple lilac, (*Syringa vulgaris*) is that known by the title of the Scotch lilac, from its having been first mentioned in the catalogue of the Edinburgh garden. The flowers of this kind are of a much richer color than thsoe of the blue lilac, the buds and underside of the petals being of a hue between purple and carmine, that gives a kind of ripeness to the appearance of the clusters, which are produced in larger groups, and with larger flowers also, than any other lilac. This kind likewise gives out its blossoms about fourteen days later than the common variety, which lengthens the season of these flowers very considerably. The Scotch lilac is succeeded by the Persian lilac, (*Syringa Persica*) which continues in blossom

until the end of June; thus decorating our plantations from eight to ten weeks with the most agreeable attire.

The common lilac grows to the height of eighteen or twenty feet, when planted in a rich, light soil; therefore it should hold a middle rank in the plantation. The Persian lilac seldom exceeds five or six feet in height in the most favorable situations; therefore it should only be placed in front of the shrubbery clumps or plantations. It often spreads to a considerable extent, and covers its whole mass with loose branches of delicate flowers, which are of a more agreeable, though less powerful odor, than those of the common lilac. We often see large bushes of the common privet-leaved lilac growing on lawns, bending their slender branches to the turf every way, and forming a mount of blossoms, arising from the green sward, that could leave the most voluptuous florist nothing to wish. Of the Persian lilacs, the variety with cut or pinnatified leaves was the first introduced into England, which Parkinson tells us, in 1640, was then growing in the garden of Master Tradescant, at South Lambeth. It is also noticed by him, in his 'Garden of Pleasant Flowers,' of 1629, but he there states that it was a stranger to England, and that he described it from foreign accounts, with a hope that some one might be induced to bring it to that country. It is therefore clear that its first introduction was between these two dates. It was formerly called the Persian jasmine, by English nurserymen, although it was first introduced into Europe with the Persian name of *agem*. It is generally supposed that the white Persian lilac is only an accidental variety, either raised from seed, or produced from suckers of the blue sort.

The Chinese lilac (*Syringa Chinensis*) was brought into England in 1795. It is of a middle stature, between the Persian and the common lilac, and its leaves smaller than the common kind, with branches that are generally better furnished with blossoms, and that are both larger and deeper colored than those of the Persian lilac.

The lilac should never have its branches shortened, as the flowers are always produced at the ends of the shoots of the former year, and just below the girandole of flowers; other shoots come out to succeed them, and contribute much to the beauty of the flower. The part on which the flower stands, decays down to the young shoots every winter. Thus nature prunes the lilac, but the trees of the common variety are greatly improved, by attention in keeping the stem free from suckers, as it will always be observed, that those plants which are so trained, produce the finest and most abundant flowers,

and on this account, the plants that are raised from seeds are much to be preferred, as they are not so apt to abound in suckers. If the seeds be sown as soon as ripe, they come up the following spring, and generally flower the third or fourth year from seed, which is earlier than those that are taken from suckers. As the Persian lilac seldom ripens its seed with us, it is usually propagated by suckers, but it is more desirable to multiply the tree by laying down the young branches, which in one year will be sufficiently rooted to transplant.

We cannot close our account of the lilac without observing that it is among those trees that retain their verdure the longest ; and as it cannot be too familiar with us, it is to be hoped that we shall see it creep into our hedge rows, and sometimes border our woodland scenes.

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## THE WEEPING WILLOW.

NATURAL ORDER—*Amentaceae*, flowers catkins; astringent, tonic and emollient. CLASS—*Diœcia*, stamens and pistils in separate corollas upon different plants, or two houses. ORDER—*Diandria*, having two pistils. GENUS—*Salix*, comprising willows. SPECIES—*Babylonica*, supposed to be the willow on which the Israelites hung their harps when captive in Babylon. Branchlets pendant: leaves lanceolate, acuminate, serrate, glabrous, upper and lower sides of different colors; stipules roundish, contracted: ament flower at leafing time: germs sessile, ovate, glabrous.

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'Thus o'er our streams do eastern willows lean,
In pensive guise; whose grief-inspiring shade,
Love has to melancholy sacred made.'

'To the brook and the willow that heard him complain,
Ah willow! willow!
Poor Colin went weeping and told them his pain.'

—

THE weeping willow, so much admired when waving its long, slender and pendulous branches over our lakes and rivers, is a native of eastern countries, and grew anciently by the waters of Babylon, as its trivial name indicates.—It was on this tree that the unhappy Israelites hung their harps, and bemoaned their beloved Jerusalem, during their captivity, and which is so pathetically expressed in the

following beautiful lines: '*By the rivers of Babylon, there we sat down, yea, we wept, when we remembered Zion. We hanged our harps upon the willows in the midst thereof.*'

The Jews were commanded by the Levitical laws, to keep the festival of the new moon after the harvest, in which they were directed to hold a branch of the willow of the brooks in their hands, singing Hosannah.

We still retain the appellation of the harvest moon in our almanacs, but our praises and thanksgivings for the bounteous gifts of nature are but feebly and rarely sung in these days of refinement.

The religion of the ancients consisted greatly in national and public praise and thanksgiving, which must appear on reflection equally desirable with public prayer, since we know not what to ask for our good; but we may always be assured that our joyful expressions of gratitude must be acceptable to the Giver of all good things.

It is related, that Alexander the Great, while at Babylon, amused himself in a boat on the waters of the Euphrates, which ran through that city; and that as the boat passed beneath a willow which hung over the river, his crown was taken from his head by the projecting branches, and fell into the water, but was immediately recovered by an expert diver, who happened to be in attendance. This event was considered as the omen of his premature dissolution.

It has been stated that the English owe the weeping willow to Pope; and this idea was strengthened by a paragraph which appeared in the St. James's Chronicle, August 25 to 27, 1801, that says, 'The famous and admired weeping willow, planted by Pope, which has lately been felled to the ground, came from Spain, inclosing a present to the lady Suffolk. Mr. Pope was in company when the covering was taken off; he observed, that the pieces of stick appeared as if they had some vegetation, and added, "perhaps they may produce something we have not in England." Under this idea he planted it in his garden, and it produced the willow tree that has given birth to so many others.' But the Hortus Kewensis informs us that the Babylonian willow was planted in England as early as 1692, at which time Pope was only four years of age; therefore those planted by him could not have been the first known in that country.

Madame de Genlis mentions, in a little work on natural history, that the two finest weeping willows in England, are at Twickingham, in the garden of Pope, standing on a terrace that is watered by the Thames. These two willows, she adds,

are equally remarkable for their bulk, and for the surprising extent of their branches, which form two large groves.

The celebrated Dr. Samuel Johnson planted a willow of this species in his childhood, near the cathedral in the city of Litchfield, his native place, which has long been known as a curiosity, both on account of its enormous size and the popularity of this writer.

The generic name of the willow, *Salix*, is derived from *salire*, to leap, because as the herbalists observe, 'It groweth with that speed that it seemeth to leap.'

The very name of this elegant tree is sufficient to inspire a degree of sadness which is not lessened by the numerous melancholy sonnets that have been written on it, until we scarcely behold a weeping willow without expecting to meet a sepulchral monument of some slighted lover, over whom this emblem of grief waves its dishevelled hair in silent sorrow. Lovers formerly made their garlands of this willow, the branches of which are very pliable.

This species of willow grows spontaneously on the coast of Persia, and is planted everywhere in the Chersonesus Taurica. It is also frequent in China, where we may suppose it is a favorite tree, from the frequent representations the people give of it on their China ware. It is also cultivated in Cochin-China.

Of all aquatic trees the weeping willow is the most ornamental, when planted in its natural situation. It gives a kind of polish to the scenery, where either natural or artificial lakes are admitted,

> Into which it dips
> Its pendant boughs, stooping as if to drink.

This tree is not calculated for what is termed rural or woodland scenery; its softness of tint, and peculiar gracefulness of growth, seem to make it a proper plant for refined or embellished landscapes. It is an excellent tree to plant by the side of fish ponds, as it is generally found to lean over the waters, and by this means afford shade to the fishes, which are frequently killed by the rays of the sun in hot summers, where there is no shade on the water; and the smaller the pool, the greater is the necessity to give it shade. This tree also affords an agreeable shade to the angler.

> ——'Beneath the quivering shade,
> When cooling vapors breathe along the mead,
> The patient fisher takes his silent stand,
> Intent, his angle trembling in his hand:

With looks unmoved, he hopes the scaly breed,
And eyes the dancing cork and bending reed.
Our plenteous streams a various race supply,
The bright-eyed perch with fins of Tyrian dye,
The silver eel, in shining volumes rolled,
The yellow carp, in scales bedropped with gold,
Swift trouts, diversified with crimson stains;
And pikes, the tyrants of the watery plains.'

The weeping willow is one of the first trees that gives out its leaves in the spring, and it retains them longer than most other deciduous trees. We have frequently seen it in the depth of winter, exhibiting its graceful branches covered with hoary frost, forming the most magnificent spectacle imaginable, at one moment reminding us of a tree sculptured from the purest alabaster, and the next representing a superb chandelier of glass.

This willow is easily propagated by planting cuttings or sets, either in the spring or autumn; but the spring is the most favorable time for this purpose.

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## THE SUGAR MAPLE.

NATURAL ORDER—*Acera*, wood of a hard texture; aperient. CLASS—*Octandria*, having eight stamens. ORDER—*Monogynia*, having but one pistil. GENUS—*Acer*, comprising maples. SPECIES—*Saccharinum*, productive of sugar. Leaves palmate 5-lobed, at the base subcordate, acuminate, obtusely sinuate, sinuate-toothed, glaucous beneath: peduncles in a nodding corymb.

VIRGIL celebrates the maple as the throne of Evander, and its branches as the canopy under which he received and seated Æneas.

'On sods of turf he sat, the soldiers round;
A maple throne, raised higher from the ground,
Received the Trojan chief; and o'er the bed
A lion's shaggy hide, for ornament, they spread.'

Pliny enumerates ten different kinds of maples that were known to the Romans in his time, the timber of some of which was in the highest estimation on account of its fine grain and beautiful veins. It was considered next to the citron wood in value; and we are told that in some instances, when it was finely spotted, it brought its weight in gold. To such a height did the fondness of the Romans for curious wood carry them

at one period of their history, that their tables were more expensive than the jewels of their ladies.

The Sugar Maple enters largely into the forests of the northern states, and grows no where in greater abundance than between the latitudes of 46 and 43°, which embrace Canada, New Brunswick, Nova Scotia, Vermont, New Hampshire and Maine. In some parts of New York and Pennsylvania, it is also common and abundant. It was estimated by Dr. Rush, that in the northern parts of these two states, there were ten millions of acres containing the sugar maple, at the rate of thirty trees to an acre. In Virginia, the Carolinas, Georgia and Mississippi, it is seldom if ever found.

The sugar maple occupies a more extensive range of American territory, than any other species of this genus. It flourishes best on elevated, and even mountainous situations, and in moist soils, and is often found in company with beach, ash and birch.

This tree often rises to the height of seventy or eighty feet, though more commonly to fifty or sixty. The great height, extended branches, regular form, rich verdure, and neat appearance of the leaves, render it a most beautiful shade tree, and it well deserves to line the sides of all our streets throughout the Union.

The wood when first cut, is white, but by exposure for a short time, takes a rosy tinge. The grain is fine and close, and when polished, has a silky lustre. It is strong and heavy, but not durable when exposed to the weather.

Two accidental forms are found in some specimens of the sugar maple, which are much valued and sought for by cabinet makers, as they give beauty to their work. The first is *curled maple*, an undulating form in the grain of the wood; the second, which is found only in old trees in a sound state, is a singular appearance of small radiating spots, more or less thickly interspersed through the wood, and furnish the material called *birds-eye maple*. These singular spots are more numerous near the sap than near the heart of the tree.

The cause which produces these singular appearances in this timber has never been satisfactorily explained. Both, however, are beautiful, and if brought from a foreign country, the furniture made from it would be prized as the richest specimens to adorn our parlors.

The sap of the sugar maple furnishes no inconsiderable resource for the economy, the comfort, and even the wealth of our northern citizens; especially to those occupying regions newly settled.

The method of procuring the sap and forming the sugar, is simple, and nearly the same in most places where any is resorted to. The common process to collect the sap is to perforate the tree with an auger, in two places about four inches apart, and eighteen or twenty inches from the ground. It is found that a more abundant flow of sap is obtained from a shallow, than a deep hole. Into these holes, two tubes are inserted, which, from the direction given to the auger in boring, nearly meet at the outer ends. The tubes are made of elder, sumac or other shrub with a large pith, and conduct the sap into small troughs or buckets, from which it is conveyed to the camp, or the place where temporary preparations are made for boiling, &c. These preparations are little more than a boiler, containing from fifteen to fifty gallons, suspended upon a bar supported by crotches, at a convenient distance from the ground for building the fire; moulds to receive the syrup when of sufficient consistence to form into cakes; and an axe for preparing the fuel.

The evaporation is carried on by a constant and brisk boiling of the sap, which is frequently replenished as the bulk is diminished, until a syrup is formed of sufficient strength to become solid as it cools. A scum which is constantly rising to the surface during the first part of the process is frequently removed, and before the syrup is left to cool and harden, it is strained through woollen cloth to separate the remaining impurities. The time for stopping the evaporation is determined by rubbing a drop of the syrup between the fingers, which will granulate if the process has been carried to a sufficient length. When the ebullition is so violent as to give signs of rising over the sides of the boiler, it is quelled by a piece of lard, butter, or rind of pork.

Maple molasses is made by discontinuing the evaporation before the liquid is of sufficient consistence to consolidate by cooling, and by the drainings from the syrup as it forms into sugar. Sugar of the finest character and grain may be formed from the sap of the maple, and though the more common kind is neither very white, nor very delicate, it has a peculiar flavor, much admired by those not accustomed to its use.

The time for collecting the sap is about the last of February, and continues from four to six weeks; after which the liquid is less abundant and less rich in the saccharine principle, and is finally so weak, that it can no longer be reduced to sugar. The tree gives the most abundant discharge of its sap, early in the season, and in clear pleasant days, preceded by cold frosty nights.

## MERCURY, OR QUICKSILVER.

CLASS—*Metallic*, comprising metals. GENUS—*Hydrargyrum* comprising quicksilver.

MERCURY or quicksilver is generally found in secondary rocks, in the state of a sulphuret, called cinnabar.

The principal mines known are those of Almadan, near Cordovia, in Spain—Deuxponts, in Germany—Idria, in Austria and Guanca Velica, in Peru. It is found in Mexico and New Granada. Small quantities, in the form of black and red sand, have been found in the United States, on the shores of Lake Michigan, Huron, St. Clair, and Erie, as far as the mouth of Vermilion River.

The quicksilver mine of Guanca Velica, in Peru, is about 200 fathoms in circumference, and 500 deep. In this profound abyss are seen streets, squares and a chapel. Thousands of flambeaux are continually burning to enlighten it. The mine generally affects those who work in it with convulsions. Notwithstanding this, the unfortunate victims of our unsatiable avarice are crowded together, and plunged naked into these abysses. Tyranny has invented this refinement in cruelty, to render it impossible for anything to escape its restless vigilance:—

'For in the dark Peruvian mine confined,
Lost to the cheerful commerce of mankind,
The groaning captive wastes his life away,
Forever exiled from the realms of day;
While all forlorn and sad, he pines in vain
For scenes he never shall possess again.'

In the temperature of our atmosphere, mercury is a white fluid metal, having the appearance and brilliancy of melted silver. When submitted to a temperature of about 40° F. below zero, that is, 72° below freezing, it is similar in appearance to other metals, and may be beaten into plates. At the poles it would probably always be solid. It is in the liquid state to about 600° above freezing, when it is evaporated.

It readily combines with some of the other metals, and forms with them what are called amalgams. Mercury is used in large quantities for separating gold and silver from their ores, for silvering mirrors, for water gilding, for making barometers and thermometers; by the philosophical chemist for many purposes of the labratory; and in the manufacture of vermilion. It has also various and important uses in medicine.

***Mercury combines with nitric acid and forms nitrate of mercury.***

Illustration. Put some mercury into a wine glass and pour in nitric acid diluted with about one-fourth its measure of water. Let the mercury be in excess and nitrate of mercury will form and crystalize, without any evaporation.

Application. This salt is used in medicine by some physicians. It is also used as a test, and in several chemical experiments.

2. *The nitrate of mercury may be reduced by heat to the nitric oxid of mercury, called red precipitate.*

Illustration. Put the salt into a gallipot and apply a moderate heat, until it is reduced to a dry white or yellowish mass. Then pulverize it very finely in Wedgewood's mortar, and put it into a ladle. Raise the heat moderately, until the powder becomes bright red; it will then assume the appearance of scales. It may be heated to a degree at which it will be red, then yellow on cooling, then red again, &c.

Application. This is the red precipitate used in medicine. This is the substance which is boiled with prussian blue to obtain the prussiate of mercury, from which the prussic acid is disengaged.

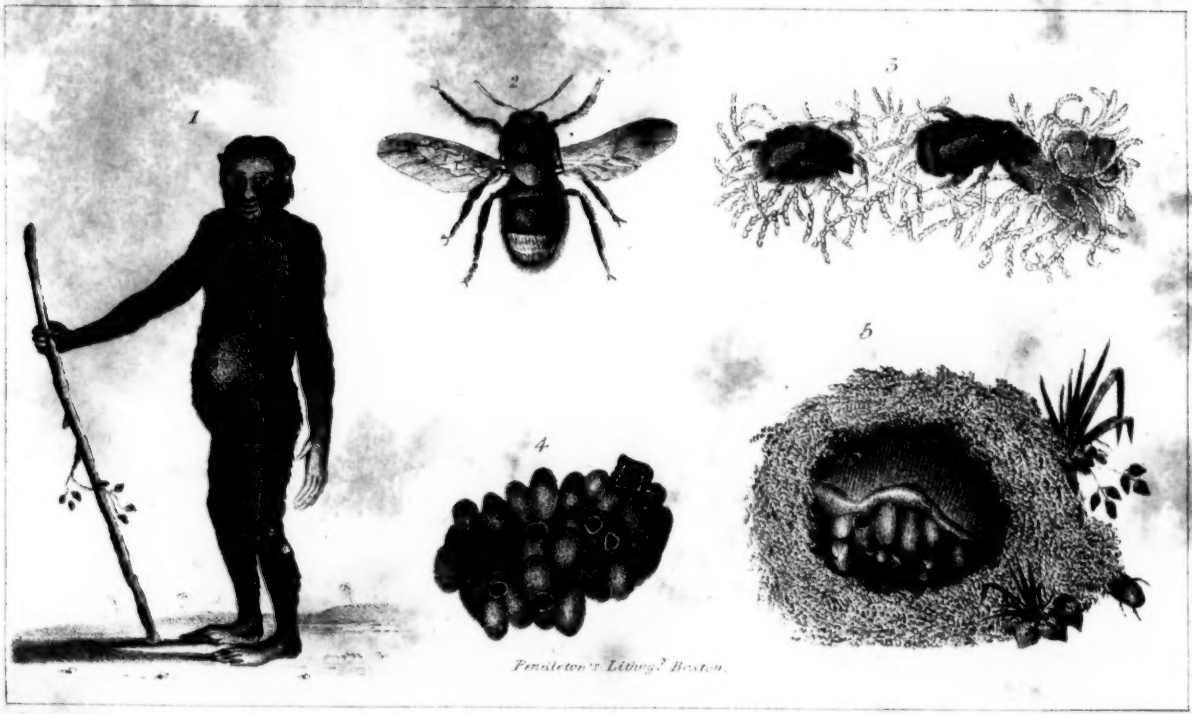
3. *Nitrate of mercury, heated with alcohol, may be formed into an explosive, or fulminating powder.*

Illustration. Make the nitrate of mercury by heating the mercury with about ten times as much nitric acid, by weight; which will be in a liquid state. After it is cool, pour it into a Florence flask with about one-fourth more alcohol. Apply a moderate heat until effervescence commences, and no longer. After effervescing a while, and producing fumes on the surface, a powder will begin to be precipitated. When the process ceases, pour off the liquid, wash the powder several times immediately in pure water, and then dry it on paper. It must be dried without exposing to much heat, or it will explode while drying.

Application. By striking a small quantity of this powder with a hammer on an anvil, it will explode violently.

4. *Mercury may be rendered solid by exposing it to cold of a proper degree of intensity.*

Illustration. Take two parts muriate of lime mixed with one of snow, and expose mercury thereto, it immediately becomes solid.

Application. If a lump of this be dropped into a cup of warm water, the solid metal will immediately become fluid, and the fluid water in the same instant will become solid. If a glass be used for the experiment, it should be infolded within a cloth to prevent accidents; for sometimes it will be shivered in pieces by the rapidity of the action.

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